

Response under 37 CFR 1.111
Minoru WAKI

U.S. Patent Application Serial No. 09/673,194
Attorney Docket No. 001350

REMARKS

Claims 1-3 and 9 are pending in this application. Claim 4 has been canceled without prejudice or disclaimer.

In responding to the rejections in the Office action, Applicants note the following general point about the present invention. In the water-based pigment dispersion of claim 1 and claims 2-3 and 9, which depend from claim 1, the thermoplastic resin containing the carboxylic group is cross-linked with a cross-linking agent. In the present claims, **the resin cures (i.e., is cross-linked with a cross-linking agent) with maintaining function as a dispersant in water-based system (i.e., with maintaining the state of a dispersion)** (please see page 16, lines 22 to 24, of the specification). As will be discussed in detail below, this is in contrast to the cited prior art in which curing does not occur while maintaining a state of dispersion.

Claims 1, 3 and 9 are rejected under 35 U.S.C. 102(a) as being anticipated by JP 09-255867 (Office action point no. 3).

Reconsideration of this rejection is respectfully requested.

JP 09255867 discloses that a crosslinker is add-mixed to a urethane type water-based composition (please see, for example, column [0032], Examples 6 and 7 in JP 09255867). **However, in JP 09255867 the urethane is not cross-linked with maintaining the state of a dispersion (please see columns [0066] in JP 09255867).** The column [0066] in JP 09255867

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discloses that the composition of JP 09255867 is dried in a hot-air-drying oven (i.e., cross-linked) only after applied to a substrate such as a canvas to form a laminated layer. **The crosslinker is merely add-mixed to the urethane type water-based composition, but does not provide cross-linking of the urethane resin in the state of a dispersion.** The composition of JP 09255867 is not a dispersion but a laminated layer after cross-linking. Namely, JP 09255867 merely discloses a dispersion in which a resin is not cross-linked and a laminated layer in which a resin is cross-linked, but does not disclose a dispersion in which a resin is cross-linked.

Therefore, claims 1, 3 and 9 are not anticipated by JP 09255867.

Claims 1, 2, 3 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Tonogaki et al. (U.S. Patent No. 5,492,952) (Office action point no. 4).

Reconsideration of this rejection is respectfully requested.

The Examiner alleges that U.S. Patent No. 5,492,952 discloses ink jet ink comprising water-based pigment dispersion wherein pigment is dispersed with acrylic resin containing carboxylic group and, after dispersing the pigment, the dispersant (i.e., acrylic resin) is cross-linked with a cross-linking agent. **However, in U.S. Patent No. 5,492,952, the acrylic resin is not cross-linked with maintaining the state of a dispersion (please see column 8, lines 5 to 18, in U.S. Patent No. 5,492,952).** U.S. Patent No. 5,492,952, column 8, lines 5 to 18, discloses: "This is presumably because the compound having oxazolyl groups has the properties of uniformly dissolving in an aqueous solution and, once water has disappeared, reacting with the compound having at least one carbonyl group. More specifically, it is presumed that component (a) (the compound having

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oxazolyl groups) in the ink of the present embodiment is uniformly dissolved in the ink, and, once this ink has been ejected from an ink-jet recording head onto recording paper and has dried, the oxazolyl group possessed by component (a) and the carboxyl group possessed by component (b) (the compound having at least one carbonyl group) combine to form a cross-linked structure, which brings about a formation of a film of non-volatile components...”. **The composition of U.S. Patent No. 5,492,952 is cross-linked only after being ejected from an ink-jet recording head onto recording paper and dried to form a film.** The ink of U.S. Patent No. 5,492,952 is not in the state of a dispersion but a film after cross-linking. Namely, U.S. Patent No. 5,492,952 merely discloses a dispersion in which a resin is not cross-linked and a film in which a resin is cross-linked, but does not disclose a dispersion in which a resin is cross-linked. Further, in the First Embodiment there is described “the above components were mixed to obtain an ink” (please see column 13, line 42 in U.S. Patent No. 5,492,952). That passage means that the components are merely mixed with each other.

Therefore, claims 1 to 3 and 9 are not anticipated by Tonogaki et al. (U.S. Patent No. 5,293,952).

Claim 4 is rejected under 35 U.S.C. 102(e) as being anticipated by Fryd et al. (Office action point no. 5).

The rejection is moot in view of the cancellation of claim 4 without prejudice or disclaimer.

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Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Jakubauskas (U.S. Patent No. 3,980,602) (Office action point no. 6).

Reconsideration of this rejection is respectfully requested.

In responding to this rejection, Applicants would first like to address the comments made by the Examiner in the Response to Arguments section of the Office action, on page 7, lines 6-7. Here, the Examiner states: "Applicants state that in the present invention, curing reactions occur to form a film after coating in coated onto substrate". This appears to refer to Applicants' remarks on page 5, lines 8-9, of the Amendment of December 6, 2002. Applicants respectfully submit that the Examiner has misunderstood these remarks, which were **not** directed to the present invention. The paragraph on page 5, lines 1-9, of the Amendment begins: "In general, ..." and is a discussion of the prior art. These lines can be seen to refer to page 16, lines 13-21, of the specification, which also being: "In general, ..." and discuss the prior art, which is then contrasted with the present invention.

Therefore, Applicants did **not** state that "in the present invention, curing reactions occur to form a film after coating is coated on a substrate." This portion of Applicants's remarks in the Amendment discussed the prior art such as Jakubauskas '602.

U.S. Patent No. 3,980,602 relates to an acrylic polymer dispersant useful for preparing pigment dispersions for aqueous acrylic coating compositions (please see column 1, lines 7 to 9 of U.S. Patent No. 3,980,602). U.S. Patent No. 3,980,602 discloses a paint (i.e., pigment dispersion) containing a pigment, an aqueous acrylic polymer composition and hexamethoxymethylmelamine (please see Example 1 of U.S. Patent No. 3,980,602). Examiner alleges in the Office action dated August 6, 2002, that hexamethoxymethylmelamine used in Example 1 of U.S. Patent No. 3,980,602

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is a cross-linking agent. However, in U.S. Patent No. 3,980,602, the acrylic polymer is not cross-linked with maintaining the state of a dispersion (please see column 6, line 58 to column 7, line 19 (Example 1) in U.S. Patent No. 3,980,602). In Example 1 of U.S. Patent No. 3,980,602, hexamethoxymethylmelamine is considered to react with the acrylic polymer when a panel onto which the paint is sprayed is prebaked. Therefore, U.S. Patent No. 3,980,602 does not disclose a dispersion in which a resin is cross-linked with maintaining the state of a dispersion.

Therefore, claim 1 is not anticipated by Jakubauskas et al. (U.S. Patent No. 3,980,602).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 09-255867 in view of Carlson et al. (U.S. Patent No. 6,136,890) and Suga et al. (U.S.. Patent No. 5,604,276) (Office action point no. 8).

Reconsideration of this rejection is respectfully requested.

The Examiner alleges that the difference between JP 09255867 and the present claimed invention is the requirement in the claims of (a) number average molecular weight of the dispersant and (b) acid number of the dispersant.

However, claim 2, which depends from claim 1, is different from JP 09255867 not only in (a) number average molecular weight of the resin (i.e., dispersant) and (b) acid number of the resin (i.e., dispersant), but also in (c) that a resin in the dispersion is cross-linked with a cross-linking agent with maintaining the state of a dispersion as discussed in the item (2) of this comments with respect to claim 1.

The superiority of a water-based pigment dispersion of claim 2, in which a thermoplastic resin is cross-linked, to dispersions in which a thermoplastic resin is not cross-linked is supported by the Declaration under 37 CFR 1.132 attached hereto.

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Additionally, U.S. Patent No. 6,136,890 and U.S. Patent No. 5,604,276 do not disclose a dispersion in which a dispersant is cross-linked with a cross-linking agent with maintaining the state of a dispersion.

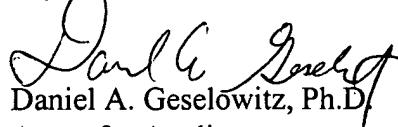
Therefore, claim 2 is novel and non-obvious over JP 09255867, U.S. Patent No. 6,136,890 and U.S. Patent No. 5,604,276, taken separately or in combination.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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Enclosure: Declaration under 37 CFR 1.132